IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT

Inventor: Stephens et al.

Serial No.   09/504,939

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Title: SYSTEM AND METHOD FOR CREATING,
DISTRIBUTING AND MANAGING
ARTIFICAL AGENTS

Docket No. 10079.0100

Examiner: Daniel S. Felten

Art Unit: 3696

APPEAL BRIEF

MAIL STOP: APPEAL BRIEF - PATENTS
COMMISSIONER FOR PATENTS
P.O. BOX 1450
ALEXANDRIA, VIRGINIA 22313-1450

Dear Commissioner:

Appellant submits the following appeal brief, pursuant to 37 C.F.R. §41.37, appealing

the final decision of the Examiner dated February 25, 2008, wherein the Examiner finally

rejected claims **24-39, 46-61, and 67-76** of the present application, and was not persuaded by the

Appellant's request for reconsideration dated August 25, 2008.

I.   REAL PARTY IN INTEREST

The subject application is assigned to Adaptive Technologies, Inc. – the real party in interest. The assignments are recorded in the United States Patent and Trademark Office at Reel 018708, Frame 0953.

II.   RELATED APPEALS AND INTERFERENCES

To Appellant's knowledge, there are no related appeals or interferences.

III.   STATUS OF CLAIMS

1. A copy of the claims being appealed, namely **24-39, 46-61, and 67-76**, are provided in Appendix A. Claims **1-76** were previously presented.

2. Claims **24-39, 46-61, and 67-76** are rejected under 35 U.S.C. § 103(a) as purportedly being unpatentable over U.S. Patent No. 5,920,848 to Schutzer in view of U.S. Patent No. 5,706,406 to Pollock.

3. Claims **1-23, 40-45, and 62-66** were withdrawn from consideration as being drawn to a nonselected invention.

IV.   STATUS OF AMENDMENTS

On September 1, 2006, claims **67-76** were added.

On September 5, 2007, claims **24** and **31** were amended to comply with semantic formalities as raised by the examiner.

V.   SUMMARY OF CLAIMED SUBJECT MATTER

24. A consulting system [page 6, lines 2-3], comprising:

a means for distributing artificial agents [page 5, lines 10-13 and lines 18-20; and page 39, lines 11-12]; and

an agent factory [page 16, lines 4-5; and Figure 1], wherein

the agent factory monitors recommendations provided by a first artificial agent [page 16, lines 23-27], and

the agent factory comprises a management system [page 16, lines 11-12; and Figure 1] having a graphical user interface configured to display the recommendations [page 16, lines 11-12; and Figure 1],

the management system further determining whether the first artificial agent is performing below a predetermined predictability value [page 26, lines 15-28; page 27, lines 1-25; and Figure 4] and

in response to performance of the first artificial agent below the predetermined predictability value, retiring the first artificial agent [page 41, lines 7-10 and lines 26-30; and Figure 13] and

making a second artificial agent available for distribution [page 39, lines 3-7].

25. The consulting system of claim 24, wherein the means for distributing is at least one of a diskette, a CD ROM and an electronic network [page 39, lines 22-28].

26. The consulting system of claim 24, wherein the artificial agents monitor their expected future performance using a predictability value [page 17, lines 14-17].

27. The consulting system of claim 26, wherein the predictability value is based on mutual-information-based reconstruction of a multivariate landscape [page 19, lines 3-5; and Figures 2 and 3].

28. The consulting system of claim 27, wherein a price time series of a financial instrument is used to generate the multivariate landscape [**page 32, lines 10-26**].

29. The consulting system of claim 24, wherein a curriculum vitae is associated with each artificial agent [**page 26, lines 15-28; page 27, lines 1-25; and Figure 4**].

30. The consulting system of claim 24, wherein distributing artificial agents is effected in accordance with a leasing service agreement [**page 39, lines 11-16**].

31. A method of consulting using artificial agents [**page 6, lines 2-3**], comprising the steps of:

accepting a request to supply artificial agents [**page 28, lines 15-22**];

creating the artificial agents [**page 22, lines 23-24**];

distributing the artificial agents [**page 5, lines 10-13 and lines 18-20; page 16, lines 11-13; and page 39, lines 11-12**];

monitoring an expected future performance of the artificial agents that have been distributed [**page 17, lines 14-17**]; and

in response to performance of at least one artificial agent below a predetermined predictability value, creating new artificial agents and distributing the new artificial agents [**page 41, lines 7-10 and lines 26-30; and Figure 13**].

32. The method of claim 31, wherein the expected future performance is monitored at a user location [**page 16, lines 15-17**].

33. The method of claim 31, wherein the request is one of a subscription and a leasing agreement [**page 39, lines 11-16**].

34. The method of claim 31, wherein each artificial agent provides a financial trading recommendation [**page 16, lines 23-27**].

35. The method of claim 34, wherein each artificial agent has a distinct trading strategy **[page 17, lines 22-23; and page 19, lines 22-24]**.

36. The method of claim 31, wherein the step of distributing comprises transmitting data over an electronic network **[page 39, lines 22-28]**.

37. The method of claim 36, wherein the electronic network is the Internet **[page 39, lines 22-28]**.

38. The method of claim 31, wherein the expected future performance of an artificial agent is associated with a predictability of a decision making strategy **[page 19, lines 8-13]**.

39. The method of claim 31, wherein at least one of the artificial agents has a strategy that is designed by a user **[page 19, lines 22-24; and page 40, lines 15-17]**.

46. A system for providing financial advice **[page 6, lines 2-3]**, comprising:
    artificial agents **[page 16, line 4]** created based, respectively, at least in part on different technical analysis templates being applied to historical price time series information **[page 19, lines 22-24]**; and
    a management system **[page 16, lines 11-12; and Figure 1]**, in communication with real time market data **[page 16, lines 17-20]**, operable to (i) receive the artificial agents **[page 16, lines 11-13]**, (ii) display characteristic information with respect to each received artificial agent **[page 26, lines 15-28; page 27, lines 1-25; and Figure 4]** and (iii) inform a user of a specific recommendation made by at least one of the artificial agents **[page 16, lines 23-27]**.

47. The system of claim 46, wherein the management system is operable as a tool for at least one of an individual investor, an institutional investor, a fund manager and a market maker **[page 5, lines 1-4]**.

48. The system of claim 46, wherein a predictability value is associated with each artificial agent [page 8, lines 19-21; page 17, lines 11-17; page 26, lines 15-28; page 27, lines 1-25; and Figure 4].

49. The system of claim 46, further comprising an automated trade clearing system in communication with the management system [page 16, line 27; and Figure 1].

50. The system of claim 46, wherein the specific recommendation is one of buy, sell and hold [page 16, lines 23-27].

51. The system of claim 46, wherein a price feedback indicator is associated with each artificial agent [page 27, lines 7-8; page 30, lines 17-29; and page 31, lines 3-4].

52. The system of claim 51, wherein the price feedback indicator is determined by querying the artificial agent as to how a recommendation would change in view of various price scenarios [page 30, lines 20-29].

53. The system of claim 51, wherein the price feedback indicator is represented by a symbol from the group consisting of +,-, > , < and n [page 31, lines 3-4].

54. A system for providing financial advice [page 6, lines 2-3], comprising: an artificial agent [page 16, line 4] created based at least in part on a technical analysis template applied to historical price time series information [page 32, lines 10-26]; and a management system [page 16, lines 11-12; and Figure 1], in communication with real time market data [page 16, lines 17-20], operable to display characteristic information with respect to the artificial agent and inform a user of a specific recommendation made by the artificial agent [page 16, lines 11-12; and Figure 1].

55. The system of claim 54, wherein a predictability value is associated with the artificial agent [page 8, lines 19-21; page 17, lines 11-17; page 26, lines 15-28; page 27, lines 1-25; and Figure 4].

56. The system of claim 54, wherein the artificial agent is self-monitoring [**page 17, lines 6-11**].

57. The system of claim 54, wherein a price feedback indicator is associated with the artificial agent [**page 27, lines 7-8; page 30, lines 17-29; and page 31, lines 3-4**].

58. A method for providing financial advice [**page 6, lines 2-3**], comprising the steps of : creating an artificial agent [**page 16, line 4**] based at least in part on a technical analysis template applied to historical price time series information of a financial instrument [**page 32, lines 10-26**]; determining an expected future performance [**page 17, lines 14-17**] of the artificial agent based on a trading strategy associated with the artificial agent [**page 19, lines 22-24; and page 40, lines 15-17**]; applying the trading strategy to the financial instrument [**page 19, lines 22-24; and page 40, lines 15-17**]; and retiring the artificial agent when the expected future performance falls below a predetermined threshold [**page 41, lines 7-10 and lines 26-30; and Figure 13**].

59. The method of claim 58, wherein the expected future performance is based on a predictability value [**page 8, lines 19-21; page 17, lines 11-17; page 26, lines 15-28; page 27, lines 1-25; and Figure 4**].

60. The method of claim 58, wherein the artificial agent is self-monitoring [**page 17, lines 6-11**].

61. The method of claim 58, further comprising determining the artificial agent's price feedback indicator by: (a) presenting the agent with different hypotheses about the price of the financial instrument during a subsequent trading period; (b) determining the artificial agent's recommendation for each of the different hypotheses; and (c) analyzing the resulting recommendations [**page 27, lines 7-8; page 30, lines 17-29; and page 31, lines 3-4**].

67. The system of claim 46, wherein a curriculum vitae is associated with each artificial agent [page 26, lines 15-28; page 27, lines 1-25; and Figure 4].

68. The system of claim 48, wherein the predictability value changes in view of real time market data [page 16, lines 17-20].

69. The system of claim 48, wherein the predictability value is based on mutual-information-based reconstruction of a multivariate landscape [page 19, lines 3-5; and Figures 2 and 3].

70. The system of claim 69, wherein a price series of a financial instrument is used to generate the multivariate landscape [page 32, lines 10-26].

71. The system of claim 46, wherein each artificial agent is self monitoring [page 17, lines 6-11].

72. The system of claim 46, wherein the artificial agents monitor their expected future performance using a predictability value [page 8, lines 19-21; page 17, lines 11-17; page 26, lines 15-28; page 27, lines 1-25; and Figure 4].

73. The system of claim 46, wherein each agent retires itself when its predictability falls below a predetermined threshold [page 41, lines 7-10 and lines 26-30; and Figure 13].

74. The system of claim 73, wherein retired agents are replaced by new agents from an agent factory [page 41, lines 7-10 and lines 26-30; and Figure 13].

75. The system of claim 46, wherein each artificial agent is pre-trained with a predetermined decision making strategy [page 17, lines 22-27; page 26, lines 15-22; and Figure 4].

76. The system of claim 46, wherein at least one of the agents has a strategy that is designed by the user [**page 19, lines 22-24; and page 40, lines 15-17**].

VI.   GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Issue 1:

1. Whether claims **24-39, 46-61, and 67-76** are obvious based on U.S. Patent No. 5,920,848 to Schutzer in view of U.S. Patent No. 5,706,406 to Pollock.

VII.   ARGUMENT

ISSUE 1: CLAIM REJECTIONS UNDER §103(a)

In the Amendment and Response submitted by the appellants on November 20, 2007, the appellants noted several established requirements for maintaining obviousness rejections and corresponding shortcomings in the prior office action. The final office action dated February 25, 2008, largely leaves these arguments and remarks unaddressed. Instead, the office action asserts that the references cannot be read in isolation but for what they fairly teach in combination with the prior art as a whole. The office action, citing *In re Merck*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986), claims that the appellants' "reference-by-reference attack" to demonstrate nonobviousness is not persuasive.

The office action appears to misunderstand the appellants' position. The appellants agree that the references cannot be read in isolation, but that they must be considered for what they teach in combination with the prior art as a whole. The appellants' position, however, is that even taken as a whole, the cited prior art fails to meet the requirements to sustain the obviousness rejections.

The requirements for obviousness rejections were addressed in *KSR v. Teleflex*, 127 S. Ct. 1727, 82 U.S.P.Q.2d 1385 (2007). Any obviousness determination must be consistent with the traditional *Graham* factors, such that obviousness is determined according to (1) the scope and content of the prior art, (2) the level of ordinary skill in the art, (3) the differences between the prior art and the claimed invention, and (4) the extent of any objective indicia of nonobviousness.

The office action bases the rejections on the combination of U.S. Patent No. 5,920,848 to Schutzer et al. and U.S. Patent No. 5,706,406 to Pollock. To establish a *prima facie* case of

obviousness based on combining prior art elements according to known methods to yield predictable results, the office action must articulate the following:

> (1) a finding that the prior art included each element claimed, although not necessarily in a single prior art reference, with the only difference between the claimed invention and the prior art being the lack of actual combination of the elements in a single prior art reference;
>
> (2) a finding that one of ordinary skill in the art could have combined the elements as claimed by known methods, and that in combination, each element merely performs the same function as it does separately;
>
> (3) a finding that one of ordinary skill in the art would have recognized that the results of the combination were predictable; and
>
> (4) whatever additional findings based on the Graham factual inquiries may be necessary, in view of the facts of the case under consideration, to explain a conclusion of obviousness.

MPEP 2143(A). The rationale to support a conclusion that the claim would have been obvious is that all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination yielded nothing more than predictable results to one of ordinary skill in the art. *KSR*, 127 S. Ct. 1727, 1742 (2007); *Sakraida v. AG Pro, Inc.*, 425 U.S. 273, 282, 189 USPQ 449, 453 (1976); *Anderson's Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57, 62-63; 163 USPQ 673, 675 (1969); *Great Atlantic & P. Tea Co. v. Supermarket Equipment Corp.*, 340 U.S.. 147, 152, 87 USPQ 303, 306 (1950). "[I]t can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does." *KSR*, 127 S. Ct. 1727, 1742 (2007). If any of these findings cannot be made, then this rationale cannot be used to support a conclusion that the claim would have been obvious to one of ordinary skill in the art. MPEP 2143(A).

Furthermore, the key to supporting any rejection under 35 U.S.C. § 103 is the clear articulation of the reasons why the claimed invention would have been obvious. The analysis

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supporting a rejection under 35 U.S.C. § 103 should be made explicit. Rejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. In the present case, the office action fails to fulfill several of these criteria with respect to the various claims.

The cited references do not show all of the claimed elements and limitations

The office action fails to include a valid finding that the prior art included each element claimed. Several express elements and limitations in the claims are absent from the cited references. For example, independent claim 24 calls for an agent factory that monitors recommendations provided by a first artificial agent. The office action asserts that the Schutzer reference discloses an agent factory that monitors financial recommendations. Even if this characterization were accurate, it would be inadequate. Claim 24 requires the agent factory to monitor recommendations provided by an agent, not simply monitoring "financial recommendations" as asserted by the office action. Consequently, even if the office action's characterization were accurate, "an agent factory that monitors financial recommendations" is not the element recited in claim 24, and the office action provides no finding that the prior art includes this claimed element.

In addition, the cited references do not disclose that any agent factory monitors recommendations provided by the agent as claimed. While the Schutzer reference appears to disclose monitoring the financial information itself, monitoring financial information and monitoring recommendations provided by an agent are not the same thing. Therefore, the cited references do not show all of the claimed elements and limitations as required to support the obviousness rejections.

Claim 24 also calls for a management system to determine whether the first artificial agent is performing below a predetermined predictability value and, if so, retiring the first

artificial agent and making a second artificial agent available for distribution. The office action provides no indication where this limitation is disclosed in the prior art. While the office action asserts that the Schutzer reference discloses an "agent factory" which monitors financial recommendations, this disclosure does not relate to the claimed limitation of determining whether the first artificial agent is performing below a predetermined predictability value and, if so, retiring the first artificial agent and making a second artificial agent available for distribution. Whereas the agent factory of claim 24 comprises a management system that may generate and/or retire artificial agents, the "agents" in the Schutzer reference are not managed by a management system. Consequently, the office action's allegation that the Schutzer reference discloses an "agent factory" as claimed is improper, and the office action provides no other finding of the claimed limitations in the prior art.

As another example, the office action alleges that "creating new agents is considered the ability of the artificial agent to 'adapt' and change its behavior in new way by supplying the agent(s) new information as suggested by Schutzer." Such an interpretation of the claim, however, directly contradicts the language of the claim and the specification, and it is improper for the office action to assign a meaning to the claim contrary to the language of the claim and the specification. Claim 24 requires the management system to retire the first artificial agent and make a second agent available for distribution. Changing the operating parameters of an agent is not the same thing. Whereas the agents in the cited references apply a single operational sequence to a potentially changing set of input variables, they are not different agents as required by claim 24. "Adaptation" in both of the cited references may involve a fluctuating set of input and output data, but such data will in any event be evaluated according to a fixed operational sequence. By contrast, different agents apply different operational sequences to evaluate such data. The office action provides no further indication of where these elements are to be found in the prior art.

The Pollock reference provides no further disclosure of these claimed elements and limitations. The office action asserts that the Pollock reference discloses various elements and

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limitations absent from the Schutzer reference, such as the required management system that may retire the first artificial agent and make a second agent available for distribution. The cited portion of the Pollock reference, however, describes a fixed operational sequence that may be configured to evaluate propositions based on changing inputs. In its broadest description, the "agent" described in the Pollock reference is a singular agent that operates according to a fixed operational sequence. The Pollock reference may generate updated output in response to updated inputs, but the system is limited to a fixed operational sequence regardless of the change in input or output.

By contrast, the appellants' claimed invention calls for creation and/or retirement of multiple artificial agents and a management system that "retir[es] the first artificial agent and mak[es] a second artificial agent available for distribution" in the event that "the first artificial agent ... perform[s] below the predetermined predictability value." The office action cites no reference suggesting retirement or generation of multiple agents or predictability values. On the contrary, the system of the Pollock reference refers to a singular agent that operates according to a fixed operational sequence.

Additionally, the cited references individually or in combination do not disclose or suggest an agent factory for managing multiple agents by comparing a given agent's performance and predictability value and replacing agents accordingly. The Pollock reference describes a system in which (at column 4, line 18) "when a goal is found, the corresponding instruction is to insert a new query into ultimate-epistemic-interests regarding the discovery of adoptable plans aimed at achieving that goal." In other words, the Pollock reference is a single predictive model that alters its plans to achieve a goal, unlike the claimed system that retires and offers different agents for achieving a preferred result. No method for evaluation of an artificial agent is disclosed or suggested in either reference and no such method can be achieved from their combination.

The rejections of the remaining independent claims are similarly deficient. For example, claim 31 expressly requires monitoring an expected future performance of the artificial agents that have been distributed and, in response to performance of at least one artificial agent below a predetermined predictability value, creating new artificial agents and distributing the new artificial agents. As noted above, the cited references fail to disclose monitoring an expected future performance of the artificial agents, and the office action does not identify any disclosure of this element in either of the cited references. In addition, as described above, the Schutzer and Pollock references fail to disclose creating new artificial agents and distributing the new artificial agents as required by the claims and defined in the specification.

Independent claim 46 requires artificial agents created based at least in part on different technical analysis templates being applied to historical price time series information, and independent claim 54 calls for an artificial agent created based at least in part on a technical analysis template applied to historical price time series information. The cited references do not disclose any such artificial agents based in any way on different technical analysis templates being applied to historical price time series information, and the office action provides no grounds to support the rejection of claim 46. Claim 46 further requires a management system, in communication with real time market data, operable to (i) receive the artificial agents, (ii) display characteristic information with respect to each received artificial agent and (iii) inform a user of a specific recommendation made by at least one of the artificial agents. Claim 54 requires a management system, in communication with real time market data, operable to display characteristic information with respect to the artificial agent and inform a user of a specific recommendation made by the artificial agent. The office action does not identify the corresponding elements with the recited limitations in the cited references, and the references provide no such disclosure.

Independent claim 58 recites creating an artificial agent based at least in part on a technical analysis template applied to historical price time series information of a financial instrument. The cited references do not disclose any such artificial agent, and the office action

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fails to identify the disclosure of any such agent in either cited reference. Claim 58 further requires determining an expected future performance of the artificial agent based on a trading strategy associated with the artificial agent, applying the trading strategy to the financial instrument, and retiring the artificial agent when the expected future performance falls below a predetermined threshold. None of these elements is disclosed in the references, and the office action provides no reasons for rejecting claim 58.

The office action of February 25, 2008, completely ignores the limitations of dependent claims, and thus does not support the rejections of these claims. For example:

- Claim 26 calls for the artificial agents to monitor their expected future performance using a predictability value. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 27 requires the predictability value to be based on mutual-information-based reconstruction of a multivariate landscape. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 28 requires a price time series of a financial instrument to be used to generate the multivariate landscape. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claims 29 and 67 require a curriculum vitae to be associated with each artificial agent. The office action provides no grounds for rejecting these claims, and the references disclose no such limitation.

- Claim 30 requires distributing artificial agents to be effected in accordance with a leasing service agreement. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 33 requires the request to be one of a subscription and a leasing agreement. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 34 requires each artificial agent to provide a financial trading recommendation. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 35 requires each artificial agent to have a distinct trading strategy. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 38 requires the expected future performance of an artificial agent to be associated with a predictability of a decision making strategy. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claims 39 and 76 require an artificial agent to have a strategy that is designed by a user. The office action provides no grounds for rejecting these claims, and the references disclose no such limitation.

- Claim 49 requires an automated trade clearing system in communication with the management system. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 50 requires the specific recommendation to be one of buy, sell and hold. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 51 requires a price feedback indicator to be associated with each artificial agent. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 52 requires the price feedback indicator to be determined by querying the artificial agent as to how a recommendation would change in view of various price scenarios. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 53 requires the price feedback indicator to be represented by a symbol from the group consisting of +,-, > , < and n. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claims 56, 60, and 71 require the artificial agent to be self-monitoring. The office action provides no grounds for rejecting these claims, and the references disclose no such limitation.

- Claim 57 requires a price feedback indicator to be associated with the artificial agent. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 59 requires the expected future performance to be based on a predictability value. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 61 requires determining the artificial agent's price feedback indicator by: (a) presenting the agent with different hypotheses about the price of the financial instrument during a subsequent trading period; (b) determining the artificial agent's recommendation for each of the different hypotheses; and (c) analyzing the resulting recommendations. The office action provides no grounds for rejecting this claim, and the references disclose no such limitations.

- Claim 68 requires the predictability value to change in view of real time market data. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 69 requires the predictability value to be based on mutual-information-based reconstruction of a multivariate landscape. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 70 requires a price series of a financial instrument to be used to generate the multivariate landscape. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 72 requires the artificial agents to monitor their expected future performance using a predictability value. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 73 requires the artificial agents to retire when their predictability falls below a predetermined threshold. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 74 requires retired agents to be replaced by new agents from an agent factory. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 75 requires each artificial agent to be pre-trained with a predetermined decision making strategy. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

In sum, office action must articulate a finding that the prior art included each element claimed. In this case, the office action fails to identify several express elements and limitations of the claims in the Schutzer and Pollock references or any other prior art references. Consequently, the rejections of the claims are improper and should be withdrawn.

The office action fails to fulfill the requirements of other possible grounds for the rejections

The office action fails to articulate the full theory of the rejections. All other grounds for rejection, however, are equally unsupported. The cited references fail to disclose several elements and limitations of the claimed invention, and therefore cannot support the rejections under any theory of obviousness. The office action provides no valid finding that the scope and content of the prior art, whether in the same field of endeavor as that of the appellants' invention or a different field of endeavor, included a similar or analogous device, method, or product; that at the time of the invention, there had been a recognized problem or need in the art, that there had been a finite number of identified, predictable potential solutions to the recognized need or

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problem, and that one of ordinary skill in the art could have pursued the known potential solutions with a reasonable expectation of success; that the prior art contained a "base" device upon which the claimed invention can be seen as an "improvement"; or that the prior art contained a device which differed from the claimed device by the substitution of some components with other components, that the substituted components and their functions were known in the art, that one of ordinary skill in the art could have substituted one known element for another, and the results of the substitution would have been predictable.

If these or other valid findings cannot be made, then the obviousness rejections cannot stand. In the present case, the office action has not satisfied the prima facie requirements, and the rejections should be withdrawn.

No reason to combine the references to arrive at the claimed invention

It is inappropriate to reject claims based on obviousness without an objective reason to combine the teachings of the references. "[T]here must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR*, 127 S. Ct. 1727, 1741 (2007). Further, "a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." *Id.* It is important for the office action "to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does." *Id.* at 1742. An examiner must present a "convincing line of reasoning supporting a rejection." MPEP 2144.

In the present case, the office action fails to provide the required articulated reasoning with a rational underpinning. The office action asserts that the claimed invention would be obvious because:

> [T]he artificial agent would be provided with information that would
> make it 'behave' within predetermined levels or within required
> rules or criteria. Thus to create a new artificial agent would essential

be to impart to it different or updated data when it failed to provide an expected outcome... Thus creating new agents is considered the ability of the artificial agent to 'adapt' and change its behavior in new way by supplying the agent(s) new information as suggested by Schutzer...

As discussed above, the office action improperly equates modifying the parameters of an agent with creating a new agent. The remainder of the proposition is incomprehensible and offers no reason to combine the references. In any event, the quoted portion of the office action does not examine the appellants' claimed invention in view of the cited references. The appellants respectfully submit that the office action thus fails to provide the requisite "articulated reasoning with some rational underpinning to support the legal conclusion of obviousness", and the rejections should be withdrawn.

No Reasonable Expectation of Success

The office action must describe a reasonable expectation of success in modifying or combining the cited references to achieve the claimed invention. The level of predictability need not be absolute, but a showing of at least some degree of predictability is required. MPEP 2143.02. The office action does not address this element of the *prima facie* case. To the extent the office action addresses the combination of the Schutzer and Pollock references, it does not describe whether such a combination would provide a viable artificial agent. Since this element is unaddressed, the rejections are improper and should be withdrawn.

Improper hindsight

The appellants submit that, in view of the shortcomings of the cited references, the conclusions of the office action can only be reached through the impermissible use of hindsight. The claimed invention is not simply a "predictable use of prior art elements according to their established functions," and the office action provides no objective reason to combine their respective teachings to arrive at the claimed invention. "A factfinder should be aware ... of the

distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning." *KSR*, 127 S. Ct. 1727, 1744 (2007)

In the present case, the office action relies on the appellants' disclosure and/or hindsight to support the obviousness rejection. This is clearly inappropriate, as "the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in appellants's disclosure." MPEP 2143. Because the office action cannot support the rejections without relying on the appellants' disclosure and/or hindsight, the rejections are improper and should be withdrawn.
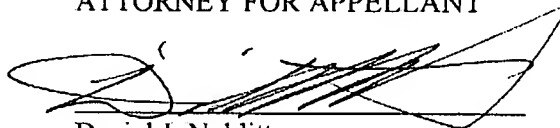
CONCLUSION

Appellants therefore respectfully request reversal of the final rejections and the allowance of the subject application.

Respectfully submitted,

ATTORNEY FOR APPELLANT

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APPENDIX A (CLAIMS APPENDIX)

1. (withdrawn) An artificial agent leasing method, comprising the steps of : (a) entering into a lease agreement with a user to provide artificial agents wherein each agent has a limited lifetime; (b) creating a plurality of artificial agents; (c) distributing to the user a first set of artificial agents from the plurality of artificial agents created in step (b); (d) subsequently distributing a second set of artificial agents to the user to replace artificial agents from the first set of artificial agents; and (e) repeating steps (b) through (d) for the duration of the lease agreement.

2. (withdrawn) The method of claim 1, wherein the artificial agents provide recommendations for at least one of buying and selling financial instruments.

3. (withdrawn) The method of claim 1, wherein the lease agreement has a duration of at least one of a week, a month and a year.

4. (withdrawn) The method of claim 1, wherein the user is at least one of an independent investor, an institutional investor, a hedge fund manager and a market maker.

5. (withdrawn) The method of claim 1, wherein each artificial agent has a predictability value.

6. (withdrawn) The method of claim 5, wherein the predictability value is based on a multivariate landscape generated from historical data.

7. (withdrawn) The method of claim 1, wherein step (d) is implemented when artificial

agents from the first set of artificial agents are retired.

8. (withdrawn) The method of claim 7, wherein any one artificial agent is retired when a

predictability value associated therewith falls below a predetermined value.

9. (withdrawn) The method of claim 1, wherein a price feedback indicator is associated with

each artificial agent.

10. (withdrawn) The method of claim 9, wherein the price feedback indicator is determined

by querying the artificial agent as to how a recommendation would change in view of

various price scenarios.

11. (withdrawn) The method of claim 9, wherein the price feedback indicator is represented

by a symbol from the group consisting of +,-, > , < and n.

12. (withdrawn) The method of claim 1, wherein each artificial agent is pre-trained.

13. (withdrawn) The method of claim 1, wherein steps (c) and (d) are implemented, at least

in part, over an electronic network.

14. (withdrawn) The method of claim 1, wherein each artificial agent is based on a technical

template.

15. (withdrawn) An artificial agent leasing system, comprising:

an artificial agent factory, the artificial agent factory periodically creating a pool of artificial agents; means for distributing a first set of artificial agents from the pool of artificial agents; means for determining when to retire any one artificial agent; and means for distributing at least one new artificial agent from the pool of artificial agents, different from any artificial agent in the first set of artificial agents.

16. (withdrawn) The system of claim 15, further comprising an artificial agent management system.

17. (withdrawn) The system of claim 16, wherein the artificial agent management system comprises a graphical user interface.

18. (withdrawn) The system of claim 16, wherein the artificial agent management system is in communication with an automated trade clearing system.

19. (withdrawn) The system of claim 15, wherein the agent factory creates artificial agents each having a predictability value.

20. (withdrawn) The system of claim 15, wherein each agent is self-monitoring.

21. (withdrawn) The system of claim 15, wherein the means for distributing comprises at least one of a diskette, a CD ROM and an electronic network.

22. (withdrawn) The system of claim 15, wherein each distributed artificial agent is pretrained with a predetermined decision making strategy.

23. (withdrawn) The system of claim 22, wherein the strategy results in a recommendation to one of buy, sell and hold a financial instrument.

24. (previously presented) A consulting system, comprising:

means for distributing artificial agents; and

an agent factory, wherein

the agent factory monitors recommendations provided by a first artificial agent, and

the agent factory comprises a management system having a graphical user interface configured to display the recommendations,

the management system further determining whether the first artificial agent is performing below a predetermined predictability value and

in response to performance of the first artificial agent below the predetermined predictability value, retiring the first artificial agent and

making a second artificial agent available for distribution.

25. (original) The consulting system of claim 24, wherein the means for distributing is at least one of a diskette, a CD ROM and an electronic network.

26. (original) The consulting system of claim 24, wherein the artificial agents monitor their expected future performance using a predictability value.

27. (original) The consulting system of claim 26, wherein the predictability value is based on

mutual-information-based reconstruction of a multivariate landscape.

28. (original) The consulting system of claim 27, wherein a price time series of a financial

instrument is used to generate the multivariate landscape.

29. (original) The consulting system of claim 24, wherein a curriculum vitae is associated

with each artificial agent.

30. (original) The consulting system of claim 24, wherein distributing artificial agents is

effected in accordance with a leasing service agreement.

31. (previously presented) A method of consulting using artificial agents, comprising the

steps of: accepting a request to supply artificial agents;

creating the artificial agents;

distributing the artificial agents;

monitoring an expected future performance of the artificial agents that have been

distributed; and

in response to performance of at least one artificial agent below a predetermined

predictability value, creating new artificial agents and distributing the new artificial

agents.

32. (original) The method of claim 31, wherein the expected future performance is monitored

at a user location.

33. (original) The method of claim 31, wherein the request is one of a subscription and a

leasing agreement.

34. (original) The method of claim 31, wherein each artificial agent provides a financial

trading recommendation.

35. (original) The method of claim 34, wherein each artificial agent has a distinct trading

strategy.

36. (original) The method of claim 31, wherein the step of distributing comprises

transmitting data over an electronic network.

37. (original) The method of claim 36, wherein the electronic network is the Internet.

38. (original) The method of claim 31, wherein the expected future performance of an

artificial agent is associated with a predictability of a decision making strategy.

39. (original) The method of claim 31, wherein at least one of the artificial agents has a

strategy that is designed by a user.

40. (withdrawn) A method for creating artificial agents, comprising the steps of : (a) testing

the effectiveness of different technical trading rules on a window of historical data and

evaluating the predictability of each trading rule; (b) selecting a subset of the different

technical trading rules based at least on one of (i) level of predictability and(ii) diversity;

(c) creating artificial agents based, respectively, on each of the technical trading rules in

the subset, each of the artificial agents so created being represented by signal; and (d)

applying the signal to a pre-trained neural network.

41. (withdrawn) The method of claim 40, further comprising analyzing the predictability of

the resulting artificial agents after step (d).

42. (withdrawn) The method of claim 41, further comprising choosing as final artificial

agents only those artificial agents having a predictability value greater than a

predetermined level.

43. (withdrawn) The method of claim 40, wherein the historical data is a price time series of

a financial instrument.

44. (withdrawn) The method of claim 40, wherein a predetermined number of agents are

created at a given time.

45. (withdrawn) The method of claim 44, wherein the predetermined number is five.

46. (original) A system for providing financial advice, comprising:

artificial agents created based, respectively, at least in part on different technical analysis

templates being applied to historical price time series information; and

a management system, in communication with real time market data, operable to (i)

receive the artificial agents, (ii) display characteristic information with respect to each

received artificial agent and (iii) inform a user of a specific recommendation made by

at least one of the artificial agents.

47. (original) The system of claim 46, wherein the management system is operable as a tool

for at least one of an individual investor, an institutional investor, a fund manager and a

market maker.

48. (original) The system of claim 46, wherein a predictability value is associated with each

artificial agent.

49. (original) The system of claim 46, further comprising an automated trade clearing system

in communication with the management system.

50. (original) The system of claim 46, wherein the specific recommendation is one of buy,

sell and hold.

51. (original) The system of claim 46, wherein a price feedback indicator is associated with

each artificial agent.

52. (original) The system of claim 51, wherein the price feedback indicator is determined by

querying the artificial agent as to how a recommendation would change in view of

various price scenarios.

53. (original) The system of claim 51, wherein the price feedback indicator is represented by

a symbol from the group consisting of +,-, > , < and n.

54. (original) A system for providing financial advice, comprising: an artificial agent created based at least in part on a technical analysis template applied to historical price time series information; and a management system, in communication with real time market data, operable to display characteristic information with respect to the artificial agent and inform a user of a specific recommendation made by the artificial agent.

55. (original) The system of claim 54, wherein a predictability value is associated with the artificial agent.

56. (original) The system of claim 54, wherein the artificial agent is self-monitoring.

57. (original) The system of claim 54, wherein a price feedback indicator is associated with the artificial agent.

58. (original) A method for providing financial advice, comprising the steps of : creating an artificial agent based at least in part on a technical analysis template applied to historical price time series information of a financial instrument; determining an expected future performance of the artificial agent based on a trading strategy associated with the artificial agent; applying the trading strategy to the financial instrument; and retiring the artificial agent when the expected future performance falls below a predetermined threshold.

59. (original) The method of claim 58, wherein the expected future performance is based on a predictability value.

60. (original) The method of claim 58, wherein the artificial agent is self-monitoring.

61. (original) The method of claim 58, further comprising determining the artificial agent's price feedback indicator by: (a) presenting the agent with different hypotheses about the price of the financial instrument during a subsequent trading period; (b) determining the artificial agent's recommendation for each of the different hypotheses; and (c) analyzing the resulting recommendations.

62. (withdrawn) An artificial agent system, comprising: an artificial agent management system in communication with real time data; and a plurality of artificial agents stored in the management system, wherein each artificial agent is associated with a predictability value and wherein each artificial agent is self-monitoring, whereby any artificial agent of the plurality of agents stored in the management system is capable of retiring itself from further decision making.

63. (withdrawn) The system of claim 62, wherein the predictability value changes in view of the real time data.

64. (withdrawn) The system of claim 62, further comprising user interface screens for monitoring the plurality of artificial agents.

65. (withdrawn) The system of claim 62, wherein the real time data is financial market data.

66. (withdrawn) The system of claim 65, wherein the management system is operable to display a price feedback indicator associated with each artificial agent.

67. (previously presented) The system of claim 46, wherein a curriculum vitae is associated with each artificial agent.

68. (previously presented) The system of claim 48, wherein the predictability value changes in view of real time market data.

69. (previously presented) The system of claim 48, wherein the predictability value is based on mutual-information-based reconstruction of a multivariate landscape.

70. (previously presented) The system of claim 69, wherein a price series of a financial instrument is used to generate the multivariate landscape.

71. (previously presented) The system of claim 46, wherein each artificial agent is self monitoring.

72. (previously presented) The system of claim 46, wherein the artificial agents monitor their expected future performance using a predictability value.

73. (previously presented) The system of claim 46, wherein each agent retires itself when its predictability falls below a predetermined threshold.

74. (previously presented) The system of claim 73, wherein retired agents are replaced by new agents from an agent factory.

75. (previously presented) The system of claim 46, wherein each artificial agent is pre-

trained with a predetermined decision making strategy.

76. (previously presented) The system of claim 46, wherein at least one of the agents has a

strategy that is designed by the user.

APPENDIX B (EVIDENCE APPENDIX)

None

APPENDIX C (RELATED PROCEEDINGS APPENDIX)

None